

## Claims

# CLAIMS

1. A disposable double pointed injection needle comprising an elongated cannula (1) having two sharpe ends (2,3) and a relatively thin outside diameter,

5 said needle cannula (1) being firmly fastened in a needle hub (4) having a distal end (5) and  
a proximal end (6), said proximal end (6) being provided with a fastening mechanism (7) for  
mounting said needle hub (4) on to a syringe, which syringe comprises a dose setting and  
injection mechanism and a cartridge (12) containing a liquid medicine to be injected subcuta-  
10 neously into a human body (11) and from which cartridge (12) doses of medicine are ex-  
pelled through a longitudinal bore in said cannula (1) utilizing the dose setting and injection  
mechanism.

said needle cannula (1) having an injection part (8), and a cartridge part (9), which cartridge part (9) for inserting into the cartridge is covered by said needle hub (4), the injection part (8) which is the part (8) entering into the human body (11) during injection has a overall length short enough to secure subcutaneously injection and the cartridge part (9) has an overall length long enough to extend into the interior of the cartridge (12) when said injection needle is fastened onto said syringe.

characterized in that

25 said injection needle further is provided with a movable needle protector arranged on said  
needle hub (4) and which movable needle protector (10) can be moved into, and irreversible  
locked in, a position where the movable needle protector (10) covers the skin piercing end  
(2) of the injection part (8) of said needle cannula (1) thereby preventing needle stick injuries.

2. An injection needle according to claim 1, characterized in that said movable needle protector (10) is a cylinder-shaped safety shield (10) which surrounds at least the major part of the injection part (8) of said needle cannula (1) when said needle cannula (1) is in an unused state, and which cylinder-shaped safety shield (10) can be longitudinal moved relatively to said needle cannula (1), such that said safety shield (10) is first moved in the proximal direction when the injection part (8) of the cannula (1) is penetrated into the subcutis layer of a human body (11), thereby exposing the major part of the injection part (8) to the human body (11), and which safety shield (10) automatically moves in the distal direction until said can-

nula (1) is surrounded by the safety shield (10) when the injection part (8) of said cannula (1) is removed from the subcutis layer of a human body (11).

- 5     3. An injection needle according to claim 2, characterized in that said safety shield (10) is automatically moved in the distal direction when the injection part (8) of said cannula (1) is removed from the subcutis layer of the human body by a resilient element (21) such as a helical spring, which resilient element (21) is located between said needle hub (4) and said safety shield (10), and which resilient element (21) is tightened when the injection part (8) of  
10    said cannula (1) is penetrated into the subcutis layer of the human body (11).
- 15    4. An injection needle according to claim 2 or 3, characterized in that in that said safety shield (10) is guided on the outside surface of said needle hub (4).
- 20    5. An injection needle according to claim 4, characterized in that said safety shield (10) is provided with a number of inwardly pointed projections (22) guided in guiding tracks (18) provided on the external surface of said needle hub (4), and that a certain degree of resiliency exist between the projections (22) and the bottom of the tracks (18).
- 25    6. An injection needle according to claim 5, characterized in that at least two guiding tracks located opposite each other on said needle hub (4) each comprises a first part (27) being substantially parallel to said needle cannula (1) and a second part (28) being connected to the first part (27) at an acute angle.
- 30    7. An injection needle according to claim 6, characterized in that one of the parts (27, 28) of the guiding tracks (18) is open at the distal end of said needle hub (4) allowing the projections to enter each guiding track (18), and that the part (27, 28) of each guiding track (18) at the distal end is provided with an elevation preventing the projection (22) once located in the guiding track (18) from sliding out of grip with said guiding track (18).
- 35    8. An injection needle according to claim 6 or 7, characterized in that each projection (22) can be shifted between at least three different locations in said guiding track (18);  
      a first location where said safety shield (10) surrounds at least the major part of the injection part (8) of said cannula (1), and in which location said cannula (1) is in an unused state

a second location where the major part of the injection part (8) is exposed to the human body (11), and in which location said cannula (1) is penetrated into the human body, and

5 a third location where said safety shield (10) fully surrounds the injection part (8) of said can-  
nula (1), and in which location said cannula (1) is fully removed from the human body (11).

9. An injection needle according to claim 8, characterized in that at least one of the guiding tracks (18) has at least one elevation (30, 31) with a steep front preventing said projection (22) from moving backwards in said guiding track (18) when said projection (22) has entered  
10 the second or/and the third position.

10. An injection needle according to claim 9, characterized in that one of the elevations is formed as a hole or a well (31) located at the end of one of the guiding tracks (18) near to the distal top end (17) of the needle hub (4), and that the projection (22) drops into the hole or well (31) when the projection (122) is in said third location, such that said safety shield (10) is irreversible locked to the needle hub (4) when said cannula (1) is fully removed from the hu-  
man body (12).

11. An injection needle according to anyone of the preceding claims, characterized in that it further comprises a container (13), surrounding said needle hub (4), said needle cannula (1), said resilient element (21) and said safety shield (10), and which container (13) has inwardly pointing ribs (20) engaging similar outwards pointing ribs (19) on said needle hub (4), such that the rotational force emerging when said container (13) is rotated is transferred to said  
needle hub (4).

25 12. An insulin injection system comprising a pen shaped syringe supporting a cartridge (12) with insulin, a dose setting and injection mechanism and a disposable double pointed injection needle, which double pointed injection needle comprises an elongated needle cannula (1) firmly fastened in a needle hub (4) exchangeable connected to said pen shaped syringe,  
30 and where the insulin are expelled from said cartridge (12) through a longitudinal bore in the needle cannula (1) utilizing the dose setting and injection mechanism, characterized in that said double pointed injection needle further is provided with a movable needle protector (10) arranged on said needle hub (4) and which movable needle protector (10) can be moved into, and irreversible locked in, a position where the movable safety protector (10) covers the  
35 skin piercing end (2) of the injection part (8) of said needle cannula (1) thereby preventing needle stick injuries.

13. An injection needle according to anyone of the preceding claims, characterized in that said disposable double pointed injection needle further is provided with means providing the user with a visual indication when said disposable double pointed injection needle is in a potentially unsafe position.

14. An injection needle according to anyone of the preceding claims, characterized in that said disposable double pointed injection needle further is provided with means providing the user with a visual indication when said disposable double pointed injection needle is in a potentially safe position.

15. An injection needle according to claim 13 or 14, characterized in that said means providing the user with a visual indications comprises at least one transparent area (32) in said movable needle protector (10) and at least one first area (33) and/or at least one second area 34 located on the outside surface of the needle hub

16. An injection needle according to claim 15, characterized in that said first areas (33) located on the outside surface of said needle hub (4) is visible through the transparent areas (32) when the projection (22) is in said first location, and/or that said second areas (33) located on the outside surface of said needle hub (4) is visible through the transparent areas (32) in said movable needle protector (10) when the projection (22) is locked in said third location.

17. An injection needle according to claim 15, characterized in that said first areas (33) and/or said second areas (34) are provided with different colours or symbols

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